Landcover Mapping Up-date Project - April, 2003

The landcover mapping up-date for Missouri is based on satellite triplicates collected during the growing season (spring, summer, fall). All 30m data channels from each date were combined into a single image file. Image files that spanned the state border where clipped at ten kilometers, in compliance with the National GAP Analysis Program standard. To minimize processing, adjacent scenes were clipped to reduce overlap. A one-kilometer overlap was specified, leaving enough information to effectively edge match the adjacent scenes. An urban mask was developed in an effort to increase classification accuracy in urban areas. The mask consisted of a combination of data from the Defense Metrological Satellite Program Nighttime Lights product and population density by census block from 2000 Tiger data. The mask was applied to the satellite composite to create an urban data set and a non-urban data set. Each of the data sets was subjected to an unsupervised classification decision rule, 30 clusters specified in urban areas and 100 clusters in non-urban areas. Clusters were viewed on screen and assigned to information classes based on previous landcover maps, aerial photography, and expert knowledge. Clusters containing more than one landcover class were labeled as "confused" and set aside for further consideration. Confused clusters were subjected to cluster busting, a technique where additional clusters are specified for each confused cluster, in an attempt to alleviate the confusion present. Cluster busting is applied to each scene once. If confusion still exists, post hoc techniques are implemented to eliminate the confusion. Post hoc techniques use additional thematic layers to aid the classification procedure. Which thematic layers are utilized depends on the type of confusion present within each satellite scene. This procedure is followed in a systematic fashion with priority given to geographic locations that are of interest to partner agencies. Based on partner input, the four scenes located in southwestern Missouri were chosen as the starting point for the landcover update.